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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,060	08/30/2006	Ryusuke Fujiyoshi	DK-US040214	6483

22919 7590 11/12/2008

GLOBAL IP COUNSELORS, LLP
1233 20TH STREET, NW, SUITE 700
WASHINGTON, DC 20036-2680

EXAMINER	
ROGERS, LAKIYA G	

ART UNIT	PAPER NUMBER
4157	

MAIL DATE	DELIVERY MODE
11/12/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,060	FUJIYOSHI ET AL.	
	Examiner	Art Unit	
	LAKIYA ROGERS	4157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/30/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office action is in response to the preliminary amendment filed on 08/30/2006.

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/591060, filed on 08/30/2006.

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 08/30/2006 was filed on the mailing date of the application on. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1-8, 14, 25, 36 and 38** are rejected under 35 U.S.C. 102(e) as being anticipated by Matsui et al. (US 2007/0125115).

Regarding claim 1, Matsui teaches an air conditioning system (10) configured to treat a latent heat load and a sensible heat load in a room by performing a vapor

compression refrigeration cycle operation (0067), comprising: a plurality of first utilization side refrigerant circuits (41) provided with an adsorbent on a surface thereof (adsorption heat exchanger 56; 0009, lines 14-16), configured for alternating between an adsorption process in which moisture in air is adsorbed onto the adsorbent by causing the adsorbent heat exchanger to function as an evaporator that evaporates refrigerant (0083; lines 3-4) and a regeneration process in which moisture is desorbed from the adsorbent by causing the adsorbent heat exchanger to function as a condenser that condenses the refrigerant (0036; lines 1-5), and connected in parallel with one another (Fig. 3a); and a plurality of second utilization side refrigerant circuits (42) each having an air heat exchanger (55, 59), configured for exchanging heat between refrigerant and air (0023; lines 4-6), and connected in parallel with one another (Fig. 4a), the first utilization side refrigerant circuits (41) being configured to supply a room with air that passed through the adsorbent heat exchanger, and the second utilization side refrigerant circuits(42) being configured to supply a room with air that passed through the air heat exchangers (Fig. 4a, 0035).

Regarding claim 2, Matsui teaches the invention as claimed above and further teaches in Fig. 2 the device comprising: a heat source side refrigerant circuit including a compression mechanism (50) and a heat source side heat exchanger (54), the heat source side refrigerant circuit being used as a heat source by both the first utilization side refrigerant circuits (41) and the said second utilization side refrigerant circuits (42) the first utilization side refrigerant circuits are being connected to a discharge gas connection pipe (by way of four-way valve 51) connected to a discharge side of the

compression mechanism, and are being connected to an inlet gas connection pipe (by way of four-way valve 51) connected to an inlet side of the compression mechanism.

Regarding claim 3, Matsui teaches an air conditioning system configured to treat a latent heat load and a sensible heat load in a room by performing a vapor compression refrigeration cycle operation (0067), the air conditioning system comprising: a first utilization side refrigerant circuit (41) having an adsorbent heat exchanger (56,57) provided with an adsorbent on a surface thereof (0009; line 15) and configured for alternating between an adsorption process in which moisture in air is adsorbed onto the adsorbent by causing the adsorbent heat exchanger to function as an evaporator that evaporates refrigerant (0083; lines 3-4), and a regeneration process in which moisture is desorbed from the adsorbent by causing the adsorbent heat exchanger to function as a condenser that condenses refrigerant (0036; lines 1-5); a plurality of second utilization side refrigerant circuits (42) each having an air heat exchanger (55, 59) configured for exchanging heat between refrigerant and air (0023; lines 4-6), and connected in parallel with one another; and a heat source side refrigerant circuit (40) including a compression mechanism(50) and a heat source side heat exchanger (54, 58) and the heat source side refrigerant circuit being used as a heat source by both the first utilization side refrigerant circuit and the second utilization side refrigerant circuits (Fig. 3a), the first utilization side refrigerant circuit (41) is being connected to a discharge gas connection pipe (51) connected to a discharge side of the compression mechanism (50), and is being connected to an inlet gas connection pipe (43) connected to an inlet side of the compression mechanism; the first utilization side

refrigerant circuit being configured to supply a room with air that passed through the adsorbent heat exchanger (57), and the second utilization side refrigerant circuits being configured to supply a room with air that passed through the air heat exchanger (55).

Regarding claims 4 and 32, Matsui teaches the invention as claimed above and further teaches wherein the second utilization side refrigerant circuits (41) are connected to a liquid connection pipe (path 3 of four-way valve 51) that is connected to a liquid side of the heat source side heat exchanger (54), and also switchably connected to the discharge gas connection pipe and the inlet gas connection pipe through a switching mechanism (51).

Regarding claims 5 and 33, Matsui teaches the invention as claimed above and further teaches wherein the second utilization side refrigerant circuits (41) are connected to a liquid connection pipe (path 3 of four-way valve 51) connected to a liquid side of the heat source side heat exchanger (54), and are connected to the inlet gas connection pipe (by way of bypass valve 51).

Regarding claim 6, Matsui teaches the invention as claimed above and further teaches wherein the first utilization side refrigerant circuits (41) and the second utilization side refrigerant circuits (42) constitute an integrated utilization unit (10).

Regarding claim 7, Matsui teaches the invention as claimed above and further teaches in Fig. 20 wherein the utilization unit (10) is configured to supply a room with air that was dehumidified or humidified in the adsorbent heat exchanger (56).

Regarding claim 8, Matsui teaches the invention as claimed above and further teaches in Fig. 20 wherein the utilization unit (10) is configured to exchange heat

through the air heat exchanger (55) between refrigerant and air that was dehumidified of or humidified in the adsorbent heat exchanger (56).

Regarding claims 14 and 36, Matsui as recited above teaches the invention as claimed and further teaches in Fig. 3a wherein at system startup, in a state in which switching between the adsorption process and the regeneration process in the plurality of adsorbent heat exchangers is stopped (they occur concurrently; 0036, lines 1-5), outdoor air is passed through one of the plurality of adsorbent heat exchangers (56) and then is exhausted to the outside, and also room air is passed through an adsorbent heat exchanger (57) among the plurality of adsorbent heat exchangers, besides the one through which the outdoor air passed, and then is supplied to a room again.

Regarding claims 25 and 38, Matsui as recited above teaches the invention as claimed and further teaches wherein a switching time interval (mode) between the adsorption process and the regeneration process in the adsorbent heat exchanger is changeable (0012).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 9 and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui et al. (US 2007/0125115) in view of Kang et al. (US 2006/0086111).

Regarding claims 9 and 34, Matsui teaches the invention as claimed above, but fails to teach wherein the air conditioning system is configured to calculate a required latent heat treatment capacity value and a required sensible heat treatment capacity value in order to control an operational capacity of the compression mechanism based on a required latent heat treatment capacity value and a required sensible heat treatment capacity value.

However, Kang teaches a vapor compression system (20) configured to calculate a required latent heat treatment capacity value (0027; lines 10-14) and a required sensible heat treatment capacity value (sensible heat ratio; 0034) in order to control an operational capacity of the compression mechanism based on a required latent heat treatment capacity value and a required sensible heat treatment capacity value (0022).

Kang further teaches that this method provides information needed for the diagnostic/ prognostics of the HVAC system (0005; lines 5-7).

Therefore, the claim would have been obvious because a person of ordinary skill in the art would have been motivated to combine the prior art to achieve the claimed invention and that there would have been a reasonable expectation of success.

7. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui et al. (US 2007/0125115) in view of Kang et al. (US 2006/0086111) and further in view of Maeda et al. (US 5950442).

Regarding claim 10, Matsui as modified above teaches the invention as claimed above, but fails to teach wherein the air conditioning system is configured to calculate a target evaporation temperature and a target condensation temperature of the system as a whole based on the required latent heat treatment capacity value and the required sensible heat treatment capacity value in order to control the operational capacity of the compression mechanism based on a target evaporation temperature and a target condensation temperature.

However, Maeda teaches in Figs. 12-14 an air conditioning system configured to calculate (comparison step) a target evaporation temperature and a target condensation temperature (humidity threshold/deadband) of the system as a whole based on the required latent heat treatment capacity value (target humidity value) and the required sensible heat treatment capacity value (target value of dry bulb temperature in order to control the operational capacity of the compression mechanism based on a target evaporation temperature and a target condensation temperature (Col. 9; lines 30-48 and Col. 10; lines 4-15).

Therefore, the claim would have been obvious because the technique for improving a particular class of devices was part of the ordinary capabilities of a person of ordinary skill in the art, in view of the teaching of the technique for improvement by Maeda.

Regarding claim 11, Matsui as modified above teaches the invention as claimed and Maeda further teaches in Fig. 15 the air conditioning system is configured to calculate an evaporation temperature difference between the target evaporation temperature and an evaporation temperature and to calculate a condensation temperature difference between the target condensation temperature and a condensation temperature (Col. 9; lines 30-48) in order to control the operational capacity of the compression mechanism based on the evaporation temperature difference and the condensation temperature difference (Col. 10; lines 4-15).

Furthermore, Maeda teaches that the master controller, which controls both units and the humidifying device, uses the output signals from the humidity and temperature sensors as a control means (Col. 9; lines 13-20). A person of ordinary skill in the art at the time of invention would recognize that if two psychometric properties of air are measured, like humidity and temperature, all other psychometric properties can be derived. Therefore, the control taught by Maeda is capable of calculating an evaporation temperature difference between the target evaporation temperature and an evaporation temperature and to calculate a condensation temperature difference between the target condensation temperature and a condensation temperature in order

to control the operational capacity of the compression mechanism based on the evaporation temperature difference and the condensation temperature difference.

Therefore, the claim would have been obvious to a person of ordinary skill in the art at the time of invention because a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and design choice.

Regarding claim 12, Matsui as modified above teaches the invention as claimed but fails to teach wherein a switching time interval between the adsorption process and the regeneration process in the adsorbent heat exchanger is changeable.

However, Maeda teaches an air conditioning system wherein the control unit may set a time limit for the humidifier (Col. 9; lines 5-8). Maeda further teaches that when the ambient temperature is really high the addition of moisture to the indoor air will only increase the latent load on the air conditioning unit (1), therefore it is preferable to restrict the operation of humidifier (11; Col 8, line 67-Col 9, line 5).

A person of ordinary skill in the art would recognize that the configuration taught by Maeda is an equivalent substitute for the configuration claimed because they both provide a timed function for processing the latent load of the system.

Therefore, the claim would have been obvious because the substitution of one known technique for an equivalent technique would have yielded predictable results to one of ordinary skill in the art at the time of invention.

8. **Claims 19-21, 26, 29, and 37** are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui et al. (US 2007/0125115) in view of Suzuki et al. (EP 1227286).

Regarding claims 19 and 37, Matsui as modified above teaches the invention as claimed but fails to teach comprising a pressure control mechanism connected to a gas side of the air heat exchanger and configured to control an evaporation pressure of refrigerant in the air heat exchanger when the air heat exchanger is caused to function as an evaporator that evaporates refrigerant.

However, Suzuki teaches in Fig. 1 an air conditioning unit (10) comprising a pressure control mechanism (12) connected to a gas side of the air heat exchanger (5) and configured to control an evaporation pressure of refrigerant in the air heat exchanger when the air heat exchanger is caused to function as an evaporator that evaporates refrigerant (0013).

Therefore, the claim would have been obvious to a person of ordinary skill in the art at the time of invention because the technique for improving a particular class of devices was part of the ordinary capabilities of a person of ordinary skill in the art at the time of invention, in view of the teaching of the technique by Suzuki.

Regarding claim 20, Matsui as modified above teaches the invention as claimed and Suzuki further teaches wherein when the air heat exchanger (5) is caused to function as an evaporator that evaporates refrigerant (Col. 5; lines 8-9), the evaporation pressure of refrigerant is controlled by the pressure control mechanism based on a dew point temperature of room air (Col. 6; lines 49-58 and Col. 9; lines 1-12).

Regarding claim 21, Matsui as modified above teaches the invention as claimed and Suzuki further teaches a pressure detection mechanism (13; 0013) configured to detect a refrigerant pressure in the air heat exchanger and an evaporation pressure of refrigerant.

Matsui as modified fails to teach wherein the air conditioning system calculates a target evaporation pressure value based on the dew point temperature of room air (0010) and uses the pressure control mechanism to control the evaporation pressure of refrigerant to be equal to or higher than the target evaporation pressure.

However, Suzuki teaches an equivalent configuration wherein the air conditioning system calculates a target evaporation temperature value based on the dew point temperature of room air and uses the pressure control mechanism to control the evaporation temperature of refrigerant to be equal to or higher than the target evaporation pressure (Col. 8; lines 22-33).

A person of ordinary skill in the art at the time of invention would recognize that temperature, volume, and pressure are all directly related, thus the configuration taught by Suzuki is an equivalent substitute for the configuration as claimed.

Therefore, the claim would have been obvious because the substitution of one known technique for another would have yielded predictable results to one of ordinary skill in the art at the time of invention in view of the teaching by Suzuki.

Regarding claim 26, Matsui as modified above teaches the invention as claimed and Matsui further teaches wherein at system startup, treatment of the a latent heat load in a room by the first utilization side refrigerant circuit (41) is given priority over

treatment of a sensible heat load in a room by the second utilization side refrigerant circuit (42) .

In the configuration taught by Matsui the treatment of the latent heat load is always given priority, or addressed first, over the sensible load because both the recirculation and outdoor air are sent through the adsorption heat exchanger (56, 57) before being delivered to the conditioned space in any case (0038).

Therefore, the claim would have been obvious to a person of ordinary skill in the art at the time of invention because the technique for improving a particular class of devices was part of the ordinary capabilities of a person of ordinary skill in the art at the time of invention, in view of the teaching of the technique by Matsui.

Regarding claim 29, Matsui as modified above teaches the invention as claimed and Matsui further teaches in Fig. 4b wherein at system startup, outdoor air is passed through one of the adsorbent heat exchangers (56) that is performing a regeneration process, and then is exhausted to the outside, and then room air is passed through an one of the adsorbent exchangers that is performing the adsorption process (57), and then is again supplied to a room (0093; lines 1-4).

Regarding the timing of the operation, when this particular mode is selected, the device performs these steps whenever in operation, not just at system startup.

Therefore, the claim would have been obvious to a person of ordinary skill in the art at the time of invention because the technique for improving a particular class of devices was part of the ordinary capabilities of a person of ordinary skill in the art at the time of invention, in view of the teaching of the technique by Matsui.

9. **Claims 22-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui et al. (US 2007/0125115) in view of Suzuki et al. (EP 1227286) and further in view of Shimoda et al. (WO/2003/029728).

Regarding claim 22, Matsui as modified above teaches the invention as claimed and further teaches the air conditioning system comprising a plurality of condensation detection mechanisms (sensors 27, 28) configured to detect a presence of condensation in the air heat exchangers.

However, Matsui fails to teach wherein when condensation is detected by the condensation detection mechanism, the target evaporation pressure value is changed.

However, Shimoda teaches in the abstract an air conditioning system wherein when condensation is detected by a condensation detection mechanism (78), the target evaporation temperature value is changed.

Therefore, the claim would have been obvious to a person of ordinary skill in the art at the time of invention because the technique for improving a particular class of devices was part of the ordinary capabilities of a person of ordinary skill in the art at the time of invention, in view of the teaching of the technique by Shimoda.

Regarding claim 23, Matsui as modified above teaches the invention as claimed but fails to teach wherein when condensation is detected by the condensation detection mechanism, the compression mechanism is stopped.

However, Shimoda teaches an air conditioner wherein when condensation is detected by the condensation detection mechanism, the compression mechanism is stopped (Col. 1; lines 62-67; Col. 2; lines 24-28 and lines 50-53).

Shimoda further teaches that the abovementioned configuration helps to reduce temperature variations in an air conditioned space and stabilizes compressor capacity (Col. 4; lines 49-51).

Therefore, the claim would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate the technique as claimed, in view of the teaching by Shimoda, to reduce temperature variations in the air conditioned space and to stabilize compressor capacity.

Regarding claim 24, Matsui as modified above teaches the invention as claimed and Shimoda further teaches in Fig. 1 the second utilization side refrigerant circuit (12, 13) includes an utilization side expansion valve (62, 67) connected to a liquid side of the air heat exchangers, and when condensation is detected by the condensation detection mechanism, the utilization side expansion valve is closed (Col. 9; lines 34-48; target value based on evaporation temperature).

10. **Claims 27-28 and 30-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui et al. (US 2007/0125115) in view of Suzuki et al. (EP 1227286) and further in view of Ishida et al. (JP2005291570).

Regarding claim 27, Matsui as modified above teaches the invention as claimed but fails to teach wherein at system start-up, treatment of the sensible heat load in a room by the second utilization side refrigerant circuit is stopped until a dew point temperature of room air is equal to or below a target dew point temperature.

However, Ishida teaches an air conditioner wherein it has a detection part which detects temperature and humidity in an interior space to determine whether a control

section gives priority to a latent or sensible heat load based on the detected results and start preferential control operation (0005; lines 3-8 and 007; lines 1-4). A person of ordinary skill in the art would recognize that dew point temperature is directly related to temperature and humidity.

Ishida further teaches that this operation allows for an immediate comfortable environment at start up by a more efficient operation (0005; lines 13-14).

Therefore, the claim would have been obvious because a person of ordinary skill in the art would have been motivated to combine the prior art to achieve the claimed invention in view of the teaching by Ishida and that there would have been a reasonable expectation of success.

Regarding claim 28, Matsui as modified above teaches the invention as claimed and Ishida further teaches wherein at system startup, treatment of the sensible heat load in a room by the second utilization side refrigerant circuit is stopped until an absolute humidity of room air is equal to or below a target absolute humidity (0008).

Regarding claim 30, Matsui as modified above teaches the invention as claimed and Ishida further teaches wherein before starting a system startup operation, a dew point temperature difference between a target dew point temperature of room air and a dew point temperature of the room air is determined (by detection part), and when a dew point temperature difference between the target dew point temperature of room air and the dew point temperature of room air is equal to or below a predetermined dew point temperature difference, the startup operation is prevented from being performed (0010; lines 4-7).

Regarding claim 31, Matsui as modified above teaches the invention as claimed and Ishida further teaches wherein before starting a system startup operation, an absolute humidity difference between a target absolute humidity of room air and an absolute humidity of the room air is determined, and when an the absolute humidity difference between the target absolute humidity of room air and the absolute humidity of room air is equal to or below a predetermined absolute humidity difference, the system startup operation is prevented from being performed (preferential control operation continues; 0008).

11. **Claims 13 and 35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui et al. (US 2007/0125115) in view of Belding et al. (WO99/14535).

Regarding claims 13 and 35, Matsui as modified above teaches the invention as claimed but fails to teach wherein at system startup, a room is supplied with air that passed through the air heat exchanger and outdoor air is prevented from passing through the adsorbent heat exchanger.

However, Belding teaches in Fig. 1 an air conditioning system wherein outdoor air may by-pass the desiccant wheel (8) (page 12, lines 25-30). Regarding supplying the room with air that passed through the air heat exchanger, Belding teaches that the outdoor air is mixed with processed, or conditioned, air (page 12; line 25). The technique taught by Belding is an equivalent substitute for the technique as claimed because they both provide air at the required conditions based on the demand without dehumidifying the outdoor air.

Belding further teaches that this technique is advantageous because it eliminates the need for a direct evaporative cooler (page 12; lines 30-31).

Therefore, the claim would have been obvious to a person of ordinary skill in the art at the time of invention because the substitution of one known technique for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

12. **Claims 16-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui et al. (US 2007/0125115) in view of Belding et al. (WO99/14535), and further in view of Ishida et al. (JP2005291570).

Regarding claim 16, Matsui as modified above teaches the invention as claimed but fails to teach wherein a system startup operation is terminated after a predetermined period of time elapsed since system startup.

However, Ishida teaches wherein a system startup operation is terminated after a predetermined period of time elapsed since system startup (0009; lines 1-4).

Therefore the claim would have been obvious to a person of ordinary skill in the art at the time of invention because the technique for improving a particular class of devices was part of the ordinary capabilities of a person of ordinary skill in the art, in view of the teaching of the technique by Ishida for improvement in other situations.

Regarding claim 17, Matsui as modified above teaches the invention as claimed but fails to teach wherein a system startup operation is terminated after a temperature difference between a target temperature of room air and a temperature of room air is equal to or below a predetermined temperature difference.

However, Ishida teaches an air conditioner control wherein a system startup operation is terminated after a temperature difference between a target temperature of room air and a temperature of room air is equal to or below a predetermined temperature difference (0007; lines 5-8).

Therefore the claim would have been obvious to a person of ordinary skill in the art at the time of invention because the technique for improving a particular class of devices was part of the ordinary capabilities of a person of ordinary skill in the art, in view of the teaching of the technique by Ishida for improvement in other situations.

Regarding claim 18, Matsui as modified above teaches the invention as claimed but fails to teach wherein before a system startup operation starts, a temperature difference between a target temperature of room air and a temperature of room air is determined, and when the temperature difference between the target temperature of room air and the temperature of room air is equal to or below a predetermined temperature, the system startup operation is prevented from being performed.

However, Ishida teaches wherein before a system startup operation starts, a temperature difference between a target temperature of room air and a temperature of room air is determined, and when the temperature difference between the target temperature of room air and the temperature of room air is equal to or below a predetermined temperature, the system startup operation is prevented from being performed (0010; lines 4-7).

Therefore the claim would have been obvious to a person of ordinary skill in the art at the time of invention because the technique for improving a particular class of

devices was part of the ordinary capabilities of a person of ordinary skill in the art, in view of the teaching of the technique by Ishida for improvement in other situations.

13. **Claim 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui et al. (US 2007/0125115) in view Chua et al. (WO 00/33932).

Regarding claim 15, Matsui as recited above teaches the invention as claimed, but fails to teach wherein at system startup, a switching time interval between the adsorption process and the regeneration process in the adsorbent heat exchanger is made longer than that during normal operation.

Chua teaches that the reactors are scheduled such that each reactor alternately operates in adsorption and desorption mode for the substantially the same time interval, and that each reactor has equal chance to receive the coolant from the condenser or the waste heat (pg. 5; lines 6-9). However, Chua also teaches that during start-up, reactors operating under adsorption mode and reactors operating under desorption mode are preferably activated one at a time so that a sudden depression of the evaporator temperature is prevented thus reducing the risk of ice formation in the evaporator (Chua; OCR Text).

Therefore, the claim would have been obvious to a person of ordinary skill in the art at the time of invention because the technique fore improving a particular class of devices was part of the ordinary capabilities of a person of ordinary skill in the art at the time of invention, in view of the teaching of the technique by Chua for improvement in other situations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAKIYA ROGERS whose telephone number is (571)270-7145. The examiner can normally be reached on M-F: 7:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef can be reached on (571)272-5026. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/L.R. /
/Zelalem Eshete/

Primary Examiner, Art Unit 3748